

<i>Delaware.</i> —25th, 28th.	<i>Montana.</i> —19th, 20th, 27th, 30th, 31st.
<i>District of Columbia.</i> —5th to 7th, 24th to 26th.	<i>Nebraska.</i> —6th, 11th to 16th, 20th to 27th.
<i>Florida.</i> —5th to 14th, 18th, 20th to 24th, 26th to 31st.	<i>Nevada.</i> —17th to 19th, 23d, 24th, 30th, 31st.
<i>Georgia.</i> —5th, 8th to 12th, 18th to 21st, 23d to 26th, 30th, 31st.	<i>New Hampshire.</i> —10th, 18th, 25th to 27th.
<i>Idaho.</i> —24th.	<i>New Jersey.</i> —3d, 5th to 8th, 11th, 24th to 29th.
<i>Illinois.</i> —1st to 5th, 9th, 10th, 12th to 17th, 21st to 24th, 29th to 31st.	<i>New Mexico.</i> —15th to 18th, 20th, 25th to 27th.
<i>Indiana.</i> —1st to 6th, 10th to 13th, 17th, 21st to 24th, 30th, 31st.	<i>New York.</i> —1st to 3d, 5th to 8th, 19th, 24th to 28th.
<i>Indian Territory.</i> —9th to 12th, 14th to 16th, 20th to 24th, 26th, 27th.	<i>North Carolina.</i> —6th to 10th, 12th, 13th, 19th to 21st, 23d to 27th, 31st.
<i>Iowa.</i> —1st, 2d, 9th to 15th, 21st, 22d, 26th, 29th.	<i>Ohio.</i> —1st to 13th, 21st to 25th, 30th, 31st.
<i>Kansas.</i> —1st, 10th to 16th, 20th to 28th.	<i>Oregon.</i> —17th, 18th, 22d to 24th.
<i>Kentucky.</i> —1st, 3d to 8th, 10th to 14th, 17th, 22d to 26th, 30th, 31st.	<i>Pennsylvania.</i> —1st to 3d, 5th to 8th, 11th, 21st, 24th to 28th, 30th.
<i>Louisiana.</i> —3d, 8th, 10th to 13th, 15th, 17th to 19th, 23d, 27th to 31st.	<i>South Carolina.</i> —5th to 13th, 18th to 20th, 22d to 26th, 30th, 31st.
<i>Maine.</i> —23d, 26th, 27th.	<i>Tennessee.</i> —2d to 4th, 6th to 10th, 12th, 15th to 26th, 29th to 31st.
<i>Maryland.</i> —3d to 8th, 24th to 26th, 28th.	<i>Texas.</i> —1st to 3d, 8th to 31st.
<i>Massachusetts.</i> —6th to 8th, 22d, 25th to 28th.	<i>Utah.</i> —11th, 18th, 20th.
<i>Michigan.</i> —1st to 3d, 5th, 8th, 9th, 11th, 16th, 17th, 20th to 25th, 29th to 31st.	<i>Vermont.</i> —10th, 25th to 27th, 30th.
<i>Minnesota.</i> —1st, 5th, 19th, 20th, 23d, 28th to 30th.	<i>Virginia.</i> —6th to 10th, 12th, 19th, 20th, 23d to 26th, 28th, 30th.
<i>Mississippi.</i> —19th, 26th, 29th, 30th.	<i>Washington Territory.</i> —7th.
<i>Missouri.</i> —1st to 4th, 10th to 17th, 21st, 22d, 24th to 27th, 29th.	<i>West Virginia.</i> —4th, 6th, 7th, 9th, 12th, 20th, 21st, 23d to 26th, 30th, 31st.
	<i>Wisconsin.</i> —2d, 13th, 14th, 21st to 23d, 29th, 30th.
	<i>Wyoming.</i> —11th, 12th, 15th, 18th, 24th, 27th, 31st.

## OPTICAL PHENOMENA.

## HALOS.

The following may be stated in regard to halos observed during May, 1887:

From the 1st to the 6th solar and lunar halos were quite generally reported from all districts east of the Mississippi, the stations reporting lunar halos being much more numerous than those reporting solar halos. During the greater part of this period the storm described as number ii under "Areas of low barometer" was advancing from the lower Rio Grande valley to northern Illinois, the halos being observed to the east and south of an area of complete cloudiness, and in the region in which cirrus and cirro-stratus clouds were generally observed.

During the period from the 6th to 13th but few solar or lunar halos were reported, and those observed were noted mostly at scattering stations to the west of the Mississippi River and in the Pacific coast districts.

On the 14th solar halos were observed in California, Oregon, and Idaho, and also in Kansas, to the east of an area of complete cloudiness covering portions of Colorado, Kansas, and Indian Territory.

Solar halos were observed on the 15th in California, Nevada, Arizona, Indiana, and New York, and on the 16th at scattering stations in the Lake region. The period from the 17th to 25th was one during which but few halos were seen, and those at scattering stations to the west of the Mississippi.

On the 26th solar halos were reported from the north Pacific coast, and lunar halos from Illinois, Indiana, and Ohio.

Both solar and lunar halos were reported on the 28th from numerous stations in the Mississippi Valley, and on the 29th from the Lake region, Ohio Valley, and south Atlantic states; these were followed on the 29th and 30th by the cloudy and rainy weather which attended the storm described as number x under "Areas of low barometer."

The phases of the moon, Washington mean time, during May, as given in "The American Ephemeris and Nautical Almanac" for 1887, are as follows: New moon, 22d, 5 h. 57.3 m.; first quarter, April 30th, 5 h. 52.1 m.; full moon, 6th, 20 h. 53.3 m.; last quarter, 14th, 3 h. 9.3 m.; perigee, 5th, 1.2 h.; apogee, 17th, 0.9 h.

## MIRAGE.

Fort Stanton, N. Mex.: a mirage was observed at sunset on the 19th; the Sierra Blanco Mountains, lying west of here, were plainly seen outlined in the base of a large cumulus cloud in the southeast.

Mirages were also reported to have been observed at the following places:

Parkston, Dak., 1st, 3d, 20th, 24th, 28th; Webster, Dak., 9th, 18th; Salina, Kans., 23d to 25th; Reidsville, N. C., 20th; Spartanburg, S. C., 15th.

## MISCELLANEOUS PHENOMENA.

## FOREST AND PRAIRIE FIRES.

Owing to the small amount of rainfall in April and May, 1887, over a large part of the country, prairie and forest fires have prevailed to great extent. These fires have caused the destruction of property of immense valuation, especially in the lumber regions of Michigan, where the losses are estimated at millions of dollars.

Heavy losses have also resulted from forest fires in Massachusetts, New York, Pennsylvania, Wisconsin, and Dakota.

Of the reports received concerning the forest and prairie fires of May, 1887, the following are given:

*Dakota.*—Grand Forks, Grand Forks Co., 9th: a fierce prairie fire burned over a considerable area fifteen miles north of this place, endangering the settlements in that region. A large elevator of the Minneapolis and Northwestern Elevator Company was destroyed.

*Minnesota.*—Saint Vincent, 7th: at 11.40 a. m. a gale set in from the south; at the same time extensive prairie fires were